H-36B
COL FALLS

June 4, 1970

MEMORANDUM

TO: Mr. Frank J. Laird, Jr.
Director of Environmental Engineering

FROM: Walter H. Unger

SUBJECT: Air Pollution Control of Chlorine Fluxing Operations

On May 18, 1970, Mr. William Eastman of Kaiser Laboratories, Oakland, California was contacted and offered the following information on the above subject.

1. Kaiser Aluminum does not now have, in any of its operations, collection devices on chlorine fluxing.

2. Kaiser is in the process of testing the UOP - Ventri-Sphere Collector at its Oakland plant and information on this testing could be obtained from Mr. Keith Bolster.

3. Suggested I also contact Mr. Frank Cavanaugh of Revere Copper and Brass Inc., Scottsboro Aluminum Division, Scottsboro, Alabama. Mr. Eastman was aware of troubles with collectors now in use at this plant but would rather have me obtain information directly.

4. Because collection is complex and difficult, Mr. Eastman recommended we obtain small collectors and run pilot tests on our particular application to determine the most economical and satisfactory method for collection and disposal of the chlorine fluxing effluent. He suggested the following companies who have small pilot units as starters.

Heil Process Equipment Corp.
12960 Elmwood Avenue
Cleveland, Ohio 44111

Burhans - Sharpe Company
Weatherly Building
Portland, Oregon
Ph. BE-4-1561

5. Mr. Eastman discussed the difficulties of using baghouses and precipitators because of corrosion and temperature and felt that wet scrubbers were the best application. He mentioned that Reynolds Aluminum had a UOP 6 stage floating bed Ventri-Sphere in operation at Macomb, Illinois. He also mentioned a U. S. Refining Company in Chicago, Illinois which he believed had installed a collector to take care of multiple aluminum furnaces.

I called Keith Bolster of Kaiser who made the following comments:

1. Testing is now underway at the Pleasenton, California plant on the UOP-3 stage Ventri-Sphere Scrubber. Presently the unit is being equipped with an additional fan to increase the pressure drop to 50 inches of water gage. Previous tests at pressure drops of 40 inches across the collector did not do a satisfactory job.

   The Elbair Scrubber was tested and was not satisfactory.

2. Mr. Bolster said that he had seen most of the collection installations on chlorine fluxing and to date had not seen a satisfactory one. He felt as did Mr. Eastman that pilot testing our application was the best approach because each application varies and only we could determine what might be best for our condition.

I called Mr. Frank Cavanaugh of Revere who made the following comments:

The Scottsboro plant is two years old and the two - 28,000 cfm Airetron Venturi Gas Scrubbers were installed when the plant was built. The gas temperature leaving the furnaces is 2200°F and must first pass through a brick lined quench tank before entering the scrubber. If the gas temperature is greater than 175°F leaving the quencher, a deluge spray (100 gpm) operates automatically to cool the gas stream.

The scrubber liquid is recirculated and was originally caustic. However, constant operation of the deluge spray diluted the liquor and made it impractical to use caustic and even poses problems in recirculation due to excess liquid in the system. The cooled gases pass from the quencher through the Venturi into a large vertical mechanical rubber-lined separator. Three fires have occurred in the mechanical separator due to excess temperature. The scrubber has only operated about 1% of the time since the plant started because of the many problems. Pulverizing Machinery, who supplied the scrubber, are coming out to the plant in the near future to try and correct the scrubber problem for Revere.

Mr. Cavanaugh expressed real concern that more work was necessary to develop satisfactory collection and urged that we proceed with a healthy respect for the problem.

Respectfully submitted,

Walt Unger

Walter H. Unger
Assistant Director

cc: E. J. Buja
F. G. Doenges
R. Bauer
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